

WHAT IS CLAIMED IS:

A method of sequentially adhering linerless repositionable sheets to a corresponding sequence of articles, the method comprising:

- (a) supplying an elongated linerless sheeting in wound roll form, the sheeting having a first major side and an opposite second major side, with pressure sensitive adhesive coating partially disposed on the first side of the sheeting and with the second side thereof being free of adhesive;
- (b) advancing a leading portion of the elongated linerless sheeting along a process path until it reaches a cut station;
- (c) laterally cutting the leading portion of the linerless sheeting to define a first cut sheet having a first lead edge and a second trailing edge;
- (d) aligning a vacuum platen having an arcuate circumferential surface into engagement with at least a portion of the second side of the first cut sheet adjacent the first lead edge thereof;
- (e) forming a negative pressure on a portion of the arcuate circumferential surface of the vacuum platen to affix the first cut sheet in the cut station thereto;
- (f) advancing a first article having a face into an applicator station adjacent the vacuum platen;
- (g) moving the vacuum platen to carry the first cut sheet from the cut station to the applicator station whereby the first cut sheet is aligned for placement on the face of the first article;
- (h) relieving the negative pressure on the arcuate circumferential surface to release the first cut sheet from the vacuum platen;

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- (i) moving the vacuum platen across the face of the article so that the pressure sensitive adhesive on the first side of the first cut sheet is pressed against the face of the article to bond the first cut sheet to the face of the article;
 - (j) repeating steps (b) and (c) to define a second cut sheet from the elongated linerless sheeting;
 - (k) repeating steps (d) and (e) with the vacuum platen relative to the second cut sheet;
 - (l) advancing a second article having a face into the applicator station adjacent the vacuum platen; and
 - (m) repeating steps (g), (h) and (i) with the second cut sheet to align, release from the vacuum platen and then press the second cut sheet against the face of the second article by the arcuate circumferential surface of the vacuum platen.

- 2. The method of claim 1 wherein the cutting step includes rotating a laterally disposed rotary knife across the process path at the cut station.
- 3. The method of claim 2, and further comprising the step of:
cleaning the rotary knife during each rotation thereof to inhibit the build-up of adhesive or sheeting material on the knife.
- 4. The method of claim 1 wherein the advancing step includes driving the rotation of the wound roll of elongated linerless sheeting as it is unwound onto the process path.

5. The method of claim 1 wherein the elongated linerless sheeting has, on its first side, a series of longitudinally disposed, equally spaced visual indicators, and wherein the method further comprises the step of:

detecting each visual indicator on the sheeting as it is advanced along the process path to generate a signal used for process control purposes.

6. The method of claim 1 wherein the elongated linerless sheeting is opaque.

7. The method of claim 1 wherein the elongated linerless sheeting is light-transmissive.

8. The method of claim 7 wherein the light-transmissive sheeting has, on either side, a series of longitudinally disposed, equally spaced visual indicators, and further comprising the step of:

detecting each visual indicator on the sheeting as it is advanced along the process path to generate a signal used for process control purposes.

9. The method of claim 1 wherein at least that portion of the elongated linerless sheeting coated with pressure sensitive adhesive is light transmissive.

10. The method of claim 1 wherein each article is continually advanced through the applicator station during the moving steps.

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11. The method of claim 1 wherein the vacuum platen is rotatable about an axis, and wherein the moving steps include rotating the vacuum platen about the axis to pass the arcuate circumferential surface thereon through the cut station and applicator station.
12. The method of claim 1 wherein the cut sheets are adhered to the articles to form an adhered sheet assembly at a rate of up to about 30,000 adhered sheet assemblies per hour.
13. The method of claim 1 wherein the advancing step includes:
rotating a drive roll in engagement with the elongated linerless sheeting along the process path; and
driving the unwinding of the supply roll of elongated linerless sheeting to advance the sheeting onto the process path in controlled coordination with the rotation of the drive roll.
14. The method of claim 1 wherein the adhesive is a repositionable pressure sensitive adhesive.
15. A method for affixing a plurality of sheets to a plurality of moving articles comprising:
providing a supply of sheets, each sheet having repositionable pressure sensitive adhesive on at least a back portion thereof;
providing a supply of articles, each article having a face presented for adhesion of a corresponding sheet thereto;
sequentially applying the sheets to the articles at a rate of over about 3,000 per hour; and

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aligning each sheet on the face of its respective article to within about 0.125 inch of a desired location in any planar coordinate.

16. The method of claim 15 wherein each cut sheet is aligned on each article to within about 0.03125 inch of a desired location in any planar coordinate on the face of the article.

17. The method of claim 15 wherein the sheet providing step includes: providing a roll of sheet material; and sequentially cutting the sheet material from the roll into identically sized sections, with each section defining one sheet.

18. The method of claim 17 wherein the sheet material of the roll has a plurality of identically spaced registration indicators thereon, and wherein the aligning step includes:

detecting the registration indicators; and
aligning the sheets relative to the articles as a function of the detection of the registration indicators.

19. An article and sheet assembly formed by the method of claim 15.

20. A method for dispensing tape flags from a roll of linerless sheet material which is elongated longitudinally, has first and second opposed surfaces, first and second opposed side edges, and which has first and second side-by-side longitudinally extending portions, the linerless sheet material having a repositionable pressure sensitive adhesive on only the first portion of the first surface and being formed from a material that is sufficiently transparent when adhered to a substrate that underlying images on the substrate are substantially visible through the linerless sheet material, the method comprising:

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providing a repeating indicia pattern disposed on one of the surfaces of the sheet material, with each of the repeating indicia patterns being sufficiently visible to define first and second indicators when the roll of sheet material is unwound;

visibly detecting the first indicator during processing of the roll to facilitate cutting apart discrete tape flag sheeting segments, of equal length, with each segment having a first side and a second side and bearing one of the repeated indicia patterns thereon;

and

visibly detecting the second indicator from the second side of each cut segment when that cut segment has its first side adhered to a surface in order to direct attention to a section of that surface.

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